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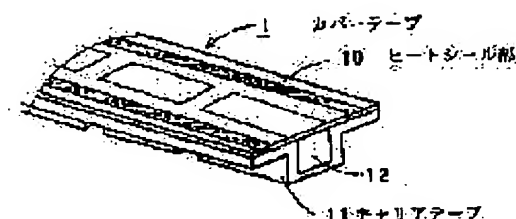
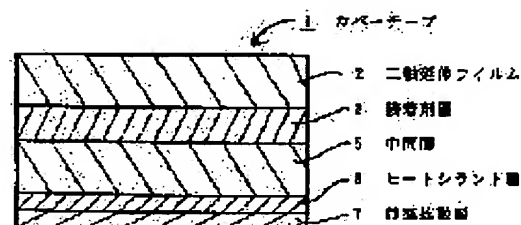
(72)Inventor : YAMASHITA RIKIYA
MATSUZAKI HIROSHI
YAMAZAKI TAKUYA

(54) COVER TAPE

(57)Abstract:

PROBLEM TO BE SOLVED: To make a cover tape excellent in an antistatic effect while dispersion of peel strength is little, and a peeling property is stabilized by a method where in the cover tape, an intermediate layer stuck to a biaxially oriented film via an adhesive layer, a heat sealant layer, and an electrostatic diffused layer containing a bis ammonium organic sulfur semiconductor are in order stuck to each other.

SOLUTION: This cover tape 1 capable of being heat sealed to a carrier tape is formed wherein an intermediate layer 5 stuck to a biaxially oriented film 2 via an adhesive layer 3, a heat sealant layer 5, and an electrostatic diffused layer 7 containing a bisammonium organic sulfur semiconductor are stuck to each other. The intermediate layer 5 controls an action wherein the cover tape is uniformly close stuck to the carrier tape when they are heat sealed, and adhesive strength of the intermediate layer 5 to the heat sealant layer 6. Further, the bisammonium organic sulfur semiconductor contained in the electrostatic diffused layer 7 is noncolored transparent, does not depend on temperature, has an excellent electrostatic preventive property to give the cover tape 1 an antistatic property, and has visibility of contents without influencing on the heat seal property.



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CLAIMS

[Claim(s)]

[Claim 1] The covering tape characterized by pasting together in order the electrostatic diffusion layer which contains the middle class, heat SHIRANTO layer, and bis-ammonium system organic sulfur semi-conductor which this covering tape pasted together through the biaxially oriented film and the adhesives layer in the covering tape which can be heat sealed on a carrier tape.

[Claim 2] The covering tape according to claim 1 characterized by for the adhesives layer which pastes said biaxially oriented film and middle class together hardening polyester, a polyether, urethane system resin, ethylene and vinyl acetate system resin, acrylic resin, epoxy resins, or these denaturation objects using isocyanates or amines, and for the mixed rates of a principal component and a curing agent being 100:1-100, and the film thickness being 5-80 micrometers.

[Claim 3] The covering tape according to claim 1 to 2 whose thickness of the middle class the thickness of said biaxially oriented film is 12-50 micrometers, and is 10-100 micrometers.

[Claim 4] The covering tape according to claim 1 on which the initial impact resistance values by the loop-formation stiffness circuit tester method of said covering tape are 4-50g, and the SUTIFUNE reinforcement f (a unit is a gram) and relation with time amount t (a unit is a part) are characterized by being what satisfies $0.001 \leq a \leq 0.5$ and $4 \leq b \leq 50$ in the relational expression of $f = -at + b$ (a constant and t are a variable for a and b).

[Claim 5] The covering tape according to claim 1 characterized by the difference of the upper limit of the reinforcement when exfoliating and a lower limit being 30g or less after heat sealing said covering tape and carrier tape.

[Claim 6] Said middle class is a consistency 0.915 - 0.940 g/cm³. Ethylene and alpha olefine copolymer, A 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [of butadienes] styrene butadiene block copolymer, The hydrogenation object of a 10 - 50 % of the weight of styrene, and 90 - 50 % of the weight [of butadienes] styrene butadiene block copolymer, And the covering tape according to claim 1 characterized by being formed with the resin of at least 2 or more various ones which contains ethylene, an alpha olefin copolymer, and a styrene butadiene block copolymer at least among high impact polystyrene.

[Claim 7] Said middle class is monolayer structure and is a consistency 0.915 - 0.940 g/cm³. Ethylene and 30 - 70 % of the weight of alpha olefine copolymers, As opposed to the resin constituent 100 weight section which consists of 70 - 30 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [of butadienes] styrene butadiene block copolymers 10 - 50 % of the weight of styrene, and the hydrogenation object 5 of a 90 - 50 % of the weight [of butadienes] styrene butadiene block copolymer - 30 weight sections, The covering tape according to claim 6 characterized by being formed with the resin constituent with which high impact polystyrene 5 - 50 weight sections are added.

[Claim 8] Said middle class is monolayer structure and is a consistency 0.915 - 0.940 g/cm³. Ethylene and 30 - 70 % of the weight of alpha olefine copolymers, As opposed to the resin constituent 100 weight section which consists of 70 - 30 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [of butadienes] styrene butadiene block copolymers The covering tape according to claim 6 characterized by being formed with the resin constituent with which the hydrogenation object 5 of a 10 - 50 % of the weight of styrene and 90 - 50 % of the weight [of butadienes] styrene butadiene block copolymer - 30 weight sections are added.

[Claim 9] Said middle class is monolayer structure and is a consistency 0.915 - 0.940 g/cm³. Covering tape according to claim 6 characterized by be formed to the resin constituent 100 weight section which consists of ethylene and 30 - 70 % of the weight of alpha olefin copolymers, and 70 - 30 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [of butadienes] styrene butadiene block

copolymers with the resin constituent with which 5 - 50 % of the weight of high impact polystyrene is added.

[Claim 10] Said interlayer consists of two-layer structure with the 2nd resin layer which touches the 1st resin layer and said heat SHIRANTO layer. Said 1st resin layer is a consistency 0.915 - 0.940 g/cm³. It is formed with ethylene and alpha olefine copolymer. Said 2nd resin layer is a consistency 0.915 - 0.940 g/cm³. Ethylene and 30 - 70 % of the weight of alpha olefine copolymers, As opposed to the resin constituent 100 weight section which consists of 70 - 30 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [of butadienes] styrene butadiene block copolymers The covering tape according to claim 6 characterized by being what currently formed with the resin constituent with which the hydrogenation object 5 of a 10 - 50 % of the weight of styrene and 90 - 50 % of the weight [of butadienes] styrene butadiene block copolymer - 30 weight sections are added.

[Claim 11] Said interlayer consists of two-layer structure with the 2nd resin layer which touches the 1st resin layer and said heat SHIRANTO layer. Said 1st resin layer is a consistency 0.915 - 0.940 g/cm³. It is formed with ethylene and alpha olefine copolymer. Said 2nd resin layer is a consistency 0.915 - 0.940 g/cm³. Ethylene and 30 - 70 % of the weight of alpha olefine copolymers, As opposed to the resin constituent 100 weight section which consists of 70 - 30 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [of butadienes] styrene butadiene block copolymers The covering tape according to claim 6 characterized by being what currently formed with the resin constituent with which high impact polystyrene 5 - 50 weight sections are added.

[Claim 12] Said interlayer consists of two-layer structure with the 2nd resin layer which touches the 1st resin layer and said heat SHIRANTO layer. Said 1st resin layer is a consistency 0.915 - 0.940 g/cm³. It is formed with ethylene and alpha olefine copolymer. Said 2nd resin layer is a consistency 0.915 - 0.940 g/cm³. Ethylene and 30 - 70 % of the weight of alpha olefine copolymers, As opposed to the resin constituent 100 weight section which consists of 70 - 30 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [of butadienes] styrene butadiene block copolymers 10 - 50 % of the weight of styrene, and the hydrogenation object 5 of a 90 - 50 % of the weight [of butadienes] styrene butadiene block copolymer - 30 weight sections, The covering tape according to claim 6 characterized by being what currently formed with the resin constituent with which high impact polystyrene 5 - 50 weight sections are added.

[Claim 13] Said interlayer turns into the 1st resin layer, the 2nd resin layer, and said heat SHIRANTO layer from a three-tiered structure with the 3rd resin layer of ****. Said 1st resin layer is a consistency 0.915 - 0.940 g/cm³. It is formed with ethylene and alpha olefine copolymer. Said 2nd resin layer is a consistency 0.915 - 0.940 g/cm³. Ethylene and 30 - 70 % of the weight of alpha olefine copolymers, It is formed with a 70 - 30 % of the weight [of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight / of butadienes / styrene butadiene block copolymers] resin constituent. Said 3rd resin layer A consistency 0.915 - 0.940 g/cm³ Ethylene and 30 - 70 % of the weight of alpha olefine copolymers, As opposed to the resin constituent 100 weight section which consists of 70 - 30 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [of butadienes] styrene butadiene block copolymers The covering tape according to claim 6 characterized by being what currently formed with the resin constituent with which the hydrogenation object 5 of a 10 - 50 % of the weight of styrene and 90 - 50 % of the weight [of butadienes] styrene butadiene block copolymer - 30 weight sections are added.

[Claim 14] Said interlayer consists of a three-tiered structure with the 3rd resin layer which touches the 1st resin layer, the 2nd resin layer, and said heat SHIRANTO layer. Said 1st resin layer is a consistency 0.915 - 0.940 g/cm³. It is formed with ethylene and alpha olefine copolymer. Said 2nd resin layer is a consistency 0.915 - 0.940 g/cm³. Ethylene and 30 - 70 % of the weight of alpha olefine copolymers, It is formed with a 70 - 30 % of the weight [of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight / of butadienes / styrene butadiene block copolymers] resin constituent. Said 3rd resin layer Ethylene and 30 - 70 % of the weight of alpha olefine copolymers of a consistency 0.915 - 0.940 g/cm³, As opposed to the resin constituent 100 weight section which consists of 70 - 30 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [of butadienes] styrene butadiene block copolymers The covering tape according to claim 6 characterized by being what currently formed with the resin constituent with which high impact polystyrene 5 - 50 weight sections are added.

[Claim 15] Said interlayer consists of a three-tiered structure with the 3rd resin layer which touches the 1st resin layer, the 2nd resin layer, and said heat SHIRANTO layer. Said 1st resin layer is a consistency 0.915 - 0.940 g/cm³. It is formed with ethylene and alpha olefine copolymer. Said 2nd resin layer is a consistency 0.915 - 0.940 g/cm³. Ethylene and 30 - 70 % of the weight of alpha olefine copolymers, It is formed with a

70 - 30 % of the weight [of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight / of butadienes / styrene butadiene block copolymers] resin constituent. Said 3rd resin layer Ethylene and 30 - 70 % of the weight of alpha olefine copolymers of a consistency 0.915 - 0.940 g/cm³, As opposed to the resin constituent 100 weight section which consists of 70 - 30 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [of butadienes] styrene butadiene block copolymers The hydrogenation object 5 of a styrene butadiene block copolymer with 10 - 50 % of the weight of styrene, and butadienes 90-50 - 30 weight sections, The covering tape according to claim 6 characterized by being what currently formed with the resin constituent with which high impact polystyrene 5 - 50 weight sections are added.

[Claim 16] Said middle class is a consistency 0.915 - 0.940 g/cm³. Covering tape according to claim 6 characterized by being formed with the resin constituent which consists of ethylene and 30 - 70 % of the weight of alpha olefin copolymers, and 70 - 30 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [of butadienes] styrene butadiene block copolymers.

[Claim 17] Said middle class is 3 the consistency of 0.915-0.940g/cm. Covering tape according to claim 6 characterized by being formed with the resin constituent which consists of 70 - 30 % of the weight of hydrogenation objects of ethylene and 30 - 70 % of the weight of alpha olefin copolymers, and a 10 - 50 % of the weight of styrene, and 90 - 50 % of the weight [of butadienes] styrene butadiene block copolymer.

[Claim 18] the line to which, as for said interlayer, glass-transition temperature exceeds 40 degrees C -- the covering tape according to claim 1 characterized by being formed with saturated polyester.

[Claim 19] Said heat sealant layer is polyester, polyurethane, a vinyl chloride and a vinyl acetate system copolymer, and a covering tape according to claim 1 to 15 characterized by including at least one sort of acrylic resin.

[Claim 20] Said heat SHIRANTO layer is a covering tape according to claim 1 to 19 which surface resistivity is in the range of 10⁵-10¹²ohms / **, and is characterized by the charge damping time being 2 or less seconds 99%.

[Claim 21] The covering tape according to claim 1 to 19 characterized by for total light transmission being 75% or more, and a haze value being 50% or less.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]**[0001]**

[Field of the Invention] This invention contains a semiconductor device in the pocket of the crevice formed in the container made of synthetic resin which contains various industrial components, for example, a carrier tape, and about the covering tape of the carrier tape which covers and heat seals a stowage, when mounted in electronic parts, the opening exfoliation is easy for it, and it belongs to the covering tape whose peel strength was stable.

[0002]

[Problem(s) to be Solved by the Invention] Sheet forming, such as a polyvinyl chloride, polystyrene, polyester, and a polycarbonate, is usually easy for the material of the container made of synthetic resin which contains various industrial components, for example, a carrier tape. Moreover, the covering tape consists of a layered product which prepared the heat sealant layer in one field of a film. A carrier tape or a covering tape is static electricity generated when the electronic parts contained exfoliate the pocket of a carrier tape, contact on a covering tape, or a covering tape, and is required to have the transparency of extent which can view not only the generating prevention means of static electricity for not causing degradation of electronic parts and destruction but contents. Moreover, to prevent electronic parts' vibrating according to exfoliation of lid material being easy in order to take out the electronic parts contained, and the variation in peel strength (the difference of the maximum of peel strength and the minimum value being henceforth indicated to be a zip rise.) being still larger during exfoliation actuation, or jumping out of a carrier tape is demanded. It offers a technical problem the covering tape excellent in the antistatic effectiveness while detachability of this invention with a small zip rise is stable.

[0003]

[Means for Solving the Problem] In order to solve the above-mentioned technical problem, this invention is the covering tape which pasted together in order the electrostatic diffusion layer (layer for diffusing static electricity generated on a covering tape) containing the middle class, heat SHIRANTO layer, and bis-ammonium system organic sulfur semi-conductor which this covering tape pasted together through the biaxially oriented film and the adhesives layer in the covering tape which can be heat sealed on a carrier tape. And the adhesives layer which pastes said biaxially oriented film and middle class together hardens polyester, a polyether, urethane system resin, ethylene and vinyl acetate system resin, acrylic resin, epoxy resins, or these denaturation objects using isocyanates or amines, the mixed rates of a principal component and a curing agent are 1:1-100, and the film thickness is constituted and rubbed to 5-80 micrometers. Moreover, the thickness of said biaxially oriented film is 12-50 micrometers, and the middle class's thickness is the covering tape which is 10-100 micrometers. And the initial impact resistance values by the loop-formation stiffness circuit tester method of said covering tape are 4-50g, and the SUTIFUNE reinforcement f (a unit is a gram) and relation with time amount t (a unit is a part) satisfy $0.001 \leq a \leq 0.5$ and $4 \leq b \leq 50$ in the relational expression of $f = at + b$ (for a and b , a constant and t are a variable). Furthermore, the difference (zip rise) of the upper limit of the reinforcement when exfoliating and a lower limit is 30g or less after heat sealing said covering tape and carrier tape. Moreover, said interlayer is the ethylene and alpha olefine copolymer (it sets on these specifications henceforth) of a consistency 0.915 - 0.940 g/cm³ (g/cm³ whose unit of a consistency is [following] a unit omits.). it is indicated as an E-O copolymer. A 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [of butadienes] styrene butadiene block copolymer (it is henceforth indicated as a S-B copolymer.) The hydrogenation object of a 10 - 50 % of the weight of styrene, and 90 - 50 % of the weight [of butadienes] styrene butadiene block copolymer (it is henceforth indicated as a S-B copolymer water garnish.) And it is formed with at least two

or more sorts of resin which contains an E-O copolymer and a S-B copolymer at least among high impact polystyrene (it is henceforth indicated as HIPS). Said interlayer is monolayer structure. 30 - 70 % of the weight of furthermore, E-O copolymers of consistencies 0.915-0.940, As opposed to the resin constituent 100 weight section which consists of 70 - 30 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [of butadienes] S-B copolymers It is formed with the resin constituent with which 10 - 50 % of the weight of styrene, the 90 - 50 % of the weight [of butadienes] S-B copolymer water garnish 5 - 30 weight sections, and HIPS5 - 50 weight sections are added. And said interlayer is monolayer structure and used to be formed to the resin constituent 100 weight section which consists of 30 - 70 % of the weight of E-O copolymers of consistencies 0.915-0.940, and 70 - 30 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [of butadienes] S-B copolymers with the resin constituent with which the 10 - 50 % of the weight of styrene and 90 - 50 % of the weight [of butadienes] S-B copolymer water garnish 5 - 30 weight sections are added. Moreover, said interlayer is monolayer structure and used to be formed to the resin constituent 100 weight section which consists of 30 - 70 % of the weight of E-O copolymers of consistencies 0.915-0.940, and 70 - 30 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [of butadienes] S-B copolymers with the resin constituent with which 5 - 50 % of the weight of HIPS(s) is added. And said interlayer consists of two-layer structure with the 2nd resin layer which touches the 1st resin layer and said heat SHIRANTO layer. Said 1st resin layer is formed with the E-O copolymer of consistencies 0.915-0.940. Said 2nd resin layer 30 - 70 % of the weight of E-O copolymers of consistencies 0.915-0.940, As opposed to the resin constituent 100 weight section which consists of 70 - 30 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [of butadienes] S-B copolymers It is formed with the resin constituent with which the 10 - 50 % of the weight of styrene and 90 - 50 % of the weight [of butadienes] S-B copolymer water garnish 5 - 30 weight sections are added. Moreover, said interlayer consists of two-layer structure with the 2nd resin layer which touches the 1st resin layer and said heat SHIRANTO layer. Said 1st resin layer is formed with the E-O copolymer of consistencies 0.915-0.940. Said 2nd resin layer 30 - 70 % of the weight of E-O copolymers of consistencies 0.915-0.940, It is formed to the resin constituent 100 weight section which consists of 70 - 30 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [of butadienes] S-B copolymers with the resin constituent with which HIPS5 - 50 weight sections are added. Moreover, said interlayer consists of two-layer structure with the 2nd resin layer which touches the 1st resin layer and said heat SHIRANTO layer. Said 1st resin layer is formed with the E-O copolymer of consistencies 0.915-0.940. Said 2nd resin layer 30 - 70 % of the weight of E-O copolymers of consistencies 0.915-0.940, As opposed to the resin constituent 100 weight section which consists of 70 - 30 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [of butadienes] S-B copolymers It is formed with the resin constituent with which 10 - 50 % of the weight of styrene, the 90 - 50 % of the weight [of butadienes] S-B copolymer water garnish 5 - 30 weight sections, and HIPS5 - 50 weight sections are added. And said interlayer turns into the 1st resin layer, the 2nd resin layer, and said heat SHIRANTO layer from a three-tiered structure with the 3rd resin layer of ****, said 1st resin layer is formed with the E-O copolymer of consistencies 0.915-0.940, and said 2nd resin layer is the E-O copolymer of consistencies 0.915-0.940. It is formed with a 70 - 30 % of the weight [of 30 - 70 % of the weight, and butadienes / 50 - 90 % of the weight of styrene and 50 - 10 % of the weight of butadienes / S-B copolymers] resin constituent. Said 3rd resin layer 30 - 70 % of the weight of E-O copolymers of consistencies 0.915-0.940, As opposed to the resin constituent 100 weight section which consists of 70 - 30 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [of butadienes] S-B copolymers It is formed with the resin constituent with which the 10 - 50 % of the weight of styrene and 90 - 50 % of the weight [of butadienes] S-B copolymer water garnish 5 - 30 weight sections are added. Moreover, said interlayer consists of a three-tiered structure with the 3rd resin layer which touches the 1st resin layer, the 2nd resin layer, and said heat SHIRANTO layer. Said 1st resin layer is formed with the E-O copolymer of consistencies 0.915-0.940. Said 2nd resin layer 30 - 70 % of the weight of E-O copolymers of consistencies 0.915-0.940, It is formed with a 70 - 30 % of the weight [of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight / of butadienes / S-B copolymers] resin constituent. Said 3rd resin layer 30 - 70 % of the weight of E-O copolymers of consistencies 0.915-0.940, It is formed to the resin constituent 100 weight section which consists of 70 - 30 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [of butadienes] S-B copolymers with the resin constituent with which HIPS5 - 50 weight sections are added. Moreover, said interlayer turns into the 1st resin layer, the 2nd resin layer, and said heat SHIRANTO layer from a three-tiered structure with the 3rd resin layer of ****. Said 1st resin layer is formed with the E-O copolymer of consistencies 0.915-0.940. Said 2nd resin layer 30 - 70 % of the weight of E-O copolymers of consistencies 0.915-0.940, It is formed

with a 70 - 30 % of the weight [of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight / of butadienes / S-B copolymers] resin constituent. Said 3rd resin layer 30 - 70 % of the weight of E-O copolymers of consistencies 0.915-0.940, As opposed to the resin constituent 100 weight section which consists of 70 - 30 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [of butadienes] S-B copolymer copolymers It is formed with the resin constituent with which the S-B copolymer water garnish 5 with 10 - 50 % of the weight of styrene and butadienes 90-50 - 30 weight sections, and HIPS5 - 50 weight sections are added. Moreover, said middle class is formed with the resin constituent which consists of 30 - 70 % of the weight of E-O copolymers of consistencies 0.915-0.940, and 70 - 30 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [of butadienes] S-B copolymers. Moreover, said middle class is formed with the resin constituent which consists of 70 - 30 % of the weight of 30 - 70 % of the weight of E-O copolymers of consistencies 0.915-0.940, and butadienes [10 - 50 % of the weight of styrene and 90 - 50 % of the weight of butadienes] S-B copolymer water garnishes. moreover, the line to which, as for said interlayer, glass-transition temperature exceeds 40 degrees C -- it is formed with saturated polyester. And said heat sealant layer contains at least one sort of polyester, polyurethane, a vinyl chloride and a vinyl acetate system copolymer, and acrylic resin. And said heat SHIRANTO layer has surface resistivity in the range of 105-1012ohms / **, and 99% charge damping time is a thing for 2 or less seconds. Furthermore, total light transmission is 75% or more, and a haze value is 50% or less of thing.

[0004]

[Description of the Prior Art] Conventionally, predetermined reinforcement is required by heat sealing with a covering tape and a carrier tape so that a covering tape may exfoliate during transportation and storage and there may be that no electronic parts drop [de] in it. However, when heat-sealing reinforcement was too large and a covering tape was exfoliated at the mounting process of electronic parts, there was a problem that the accident on which a carrier tape vibrates and electronic parts jump out of the pocket of a carrier tape occurred. Therefore, when a covering tape is heat sealed by sufficient reinforcement for a carrier tape and electronic parts are mounted, it is required that the detachability should be good. Adjusting this heat-sealing reinforcement on condition that heat-sealing temperature, time amount, a pressure, etc. had the problem of being very difficult. Moreover, there was a problem that a carrier tape vibrates when a zip rise is large even if it has suitable peel strength, or the contained electronic parts jumped out.

[0005] Scouring conductive particles, such as a conductive carbon particle and a metallic oxide, and a metal particle, and it being crowded or applying to a carrier tape as a prevention means of static electricity generating of a carrier tape, is performed. Moreover, scouring antistatic agents, such as a surfactant, the conductive particle of a metallic-oxide system, and a metal particle, and it being crowded or applying to the heat sealant layer which contacts electronic parts and directly as a prevention means of static electricity generating of a carrier tape, is performed. As for what mixed especially in the heat sealant layer the particle which electric-conduction-ized the metallic oxide (the tin oxide, zinc oxide), transparency was used comparatively well.

[0006] However, the conductive carbon black particle as an antistatic agent contained in an above-mentioned carrier tape and an above-mentioned covering tape and the metal particle reduced the transparency of a sheet, and had the problem of being hard to check the electronic parts contained from the outside. Moreover, when a surfactant was applied, the antistatic nature of a surfactant had a humidity dependency, does not have electrification brain prevention effectiveness sufficient in the ambient atmosphere of low humidity, and had the trouble of destroying electronic parts.

[0007]

[Embodiment of the Invention] The covering tape 1 of this invention pastes together in order the electrostatic diffusion layer 7 in which this covering tape 1 contains a biaxially oriented film 2 and a middle class [who was pasted together through the adhesives layer 3] 5, and heat SHIRANTO layer 6 ** bis-ammonium system organic sulfur semi-conductor in the covering tape 1 which can be heat sealed on a carrier tape, as shown in drawing 1 .

[0008] The biaxially oriented film of this invention is a 12-25-micrometer 2 shaft biaxially oriented film produced from thermoplastics, such as polyamides, such as polyolefines, such as polyester, such as polyethylene terephthalate and polyethylenenaphthalate, and polypropylene, and nylon, and a polycarbonate. And bond strength with an adhesives layer is strengthened, and since it is stabilized, surface treatment, such as corona discharge treatment, plasma treatment, and sandblasting processing, can also be beforehand performed for the side which touches an adhesives layer if needed. Furthermore, a surfactant etc. can be scoured and lump electrification processing can also be performed. And although the thickness can be

suitably set up by the purpose of use, 6-100 micrometers is 20-45 micrometers preferably. Moreover, case [whose biaxially oriented film is / like an ingredient with rigidity, for example, rigid polyvinyl chloride, and a polycarbonate], an uniaxial stretched film can be used.

[0009] And pasting with a biaxially oriented film and an interlayer is preferably formed through a hardening reactive adhesive layer. The base resin of the adhesives layer of the 2 liquid reaction type of this invention or a heat-curing mold uses polyester system resin, polyether system resin, urethane system resin, urethane denaturation polyester system resin, urethane-ized polyether system resin, a vinyl system copolymer, ethylene and vinyl acetate system resin, ethylene and vinyl acetate acrylic resin, acrylic resin, aromatic series polyamine system resin, poly thiol system resin, ethylene acrylic resin, an epoxy resin, a polyamide, ionizing-radiation hardening mold resin, various synthetic rubber, etc. as a principal component. And as the curing agent, it is tolylene diisocyanate, and 4 and 4, Although diphenylmethane diisocyanate, hexamethylene di-isocyanate, isophorone diisocyanate, xylenediisocyanate, naphthylene-1,5-diisocyanate, polyamine, the poly thiol, etc. are changed with classes, the 1 - 100 weight section is mixed to the base resin 100 weight section.

[0010] Moreover, the constituent which mixed suitably the prepolymer which has a polymerization nature unsaturated bond or an epoxy group in a molecule, oligomer, and/or a monomer as ionizing-radiation hardening mold resin is used. For example, there are urethane acrylate, polyester acrylate, etc.

[0011] Spreading of an adhesives layer does not ask the approaches, such as gravure coating and roll coating. that from which the thickness of the adhesives layer of a reaction hardening mold becomes the factor which gives rigidity to a covering tape -- it is -- 3 - 80 g/m² -- desirable (it indicates like solid content and the following) -- 5-20g/m² it is . 3 g/m² Below, bond strength is not made to homogeneity, and it is 80 g/m². Rigidity may be strong and the above adhesives layer is not only disadvantageous in respect of a price, but it may produce a crack on a covering tape. Moreover, the heat-sealing nature in low temperature may be checked because an adhesives layer becomes thick.

[0012] Covering tapes are a heat-resistant biaxially oriented film and the heat-sealing bar which contacts when heat sealing a covering tape and a carrier tape according to a compound operation of a reaction hardening mold adhesives layer, and can give the thermal resistance to which a covering tape prevents carrying out thermofusion or carrying out a heat shrink.

[0013] the rigidity as a sheet become large in an operation of the adhesives layer of a reaction type , and the exfoliation include angle of the covering tape which paste a biaxially oriented film and the middle class together through an adhesives layer , and be form be stable from that which used thermoplastics as the resin for adhesion and carried out a sandwiches lamination , it make small the zip rise which be the range of the maximum when exfoliate , and the minimum value , and guess as what can give high-speed exfoliation of a covering tape , i.e. , high-speed restoration fitness .

[0014] moreover, although rigidity is greatly made by only thickening a biaxially oriented film, by becoming thick, the heating value which a heat sealant layer requires cannot be transmitted, but the temperature of a heat-sealing bar is set up highly -- required -- such -- **. Therefore, the carrier tape in which thermal resistance is inferior carries out deformation and a dimensional change, and it becomes the cause of changing the location when mounting electronic parts.

[0015] It became clear that, as for a zip rise, a zip rise will become large with regards to the rigidity of a covering tape if the rigidity of a covering tape is small, and a zip rise would become small if rigidity is conversely large as a result of electronic parts' having jumped out of the carrier tape when a zip rise was large even if the peel strength of a covering tape was fitness, and there being a problem that it is stabilized at high speed and cannot equip and studying components wholeheartedly. moreover, an adhesives layer -- 80 g/m² checking heat-sealing nature, if it exceeds -- such -- ** -- more -- desirable -- 5 - 20 g/m² it is .

[0016] If needed, using conductive particles, such as a surface active agent, an organic silicon compound, conductive carbon black, metal vacuum evaporatio, and a metallic oxide, etc., antistatic treatment can be performed, the field opposite to a heat sealant layer, i.e., outermost side, of a covering tape, and generating of static electricity by contact to antisticking, such as dust and Chile, or other fields can be prevented on the front face of the base material sheet 2 in it.

[0017] The interlayer 5 who created at another process through the adhesives layer 3 of the above-mentioned reaction type as it was indicated in drawing 1 R> 1, drawing 2 , or drawing 3 as a biaxially oriented film 2 and an interlayer 5 can be formed by the dry lamination.

[0018] The middle class of this invention does an operation of the cushion which sticks both sheets to homogeneity, when a covering tape is heat sealed with a carrier tape. The bond strength of an interlayer 5 and the heat sealant layer 6 is regulated so that interlaminar peeling can be carried out to coincidence

between an interlayer 5 and the heat sealant layer 6, as the covering tape heat sealed is shown in drawing 5 and drawing 6, when exfoliating from a carrier tape. Any of monolayer structure and multilayer structure are satisfactory for an interlayer 5, and he can form by combining two or more sorts of thermoplastics. And it can create by the monolayer or the multilayer by the usual film production approach by the inflation method by the circular dice, and the cast method by T dice.

[0019] Although anything of a single polymer, a copolymer, and a polymer alloy can be used, the resin used for an interlayer can be selected from a thing with an operation of cushion effect, when heat sealing a carrier tape and a covering tape, while it regulates bond strength (peel strength) with a heat sealant layer. For example, it can form by the polymer alloy which becomes with polyester, polyethylene, an ethylene-vinylacetate copolymer, an ethylene acrylic-acid copolymer, an ethylene acrylic ester copolymer, an ionomer, ethylene propylene rubber, and two or more sorts of resin that contains the polyethylene and the S-B copolymer other than polypropylene at least among polyethylene, a S-B copolymer, a S-B copolymer water garnish, and HIPS. Hereafter, a desirable interlayer's configuration is shown especially.

[0020] The interlayer of monolayer structure is indicated. The middle class can form with three or more sorts of resin which contains an E-O copolymer and a S-B copolymer at least among the E-O copolymer of consistencies 0.915-0.940, a 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [of butadienes] S-B copolymer, a 10 - 50 % of the weight of styrene, and 90 - 50 % of the weight [of butadienes] S-B copolymer water garnish, and HIPS. The E-O copolymers used for the middle class's formation are ethylene and a copolymer with a butene, a pentene, a hexene, a heptene, octene, 4-methyl pentene 1, etc. When the consistency of such an E-O copolymer exceeds less than 0.915 and 0.940, the film production nature of the interlayer by combination with a S-B copolymer falls and is not desirable.

[0021] Moreover, if the amount of the styrene which constitutes the S-B copolymer which forms the middle class is less than 50 % of the weight, the adhesiveness of a film will increase and it will be hard coming to deal with it, and when it exceeds 90 % of the weight, bond strength with the heat sealant layer in low temperature may fall.

[0022] The mixing ratio of an interlayer's E-O copolymer and a S-B copolymer influences greatly the peel strength when exfoliating, after heat sealing on a carrier tape, and the transparency of a covering tape. 70 - 30 % of the weight has [the mixing ratio of an E-O copolymer and a S-B copolymer] 30 - 70 % of the weight of E-O copolymers, and a desirable S-B copolymer. [in / at this invention / an interlayer] When a S-B copolymer exceeds [an E-O copolymer] 70 % of the weight less than 30% of the weight, transparency will get worse not only an interlayer's film production nature falls, but, and the bond strength of an interlayer and a heat sealant layer will become large, the peel strength of a covering tape will exceed a fitness value, and it is not desirable. On the other hand, an E-O copolymer exceeds 70 % of the weight, and when a S-B copolymer is less than 30 % of the weight, the bond strength of the middle class and a heat sealant layer is small, and is not less [peel strength / fitness / as a covering tape], and desirable.

[0023] When using a S-B copolymer water garnish and HIPS for an interlayer and fabricating with four sorts of resin, it is desirable to carry out 5-50 weight section addition of 5 - 30 weight section and the HIPS for a 10 - 50 % of the weight of styrene and 90 - 50 % of the weight [of butadienes] S-B copolymer water garnish to the resin constituent 100 weight section which consists of the 30 - 70 % of the weight of the above E-O copolymers and 70 - 30 % of the weight of S-B copolymers.

[0024] The middle class who will be obtained if the addition of a S-B copolymer water garnish exceeds 30 weight sections is not easy [blocking] and desirable. When it is not actually the hydrogenation object which was added as a S-B copolymer water garnish, since the butadiene component is high, this copolymer becomes easy to generate the gel object which carried out the polymerization at the time of an interlayer's formation that it is easy to oxidize. Moreover, when it replaces with a S-B copolymer water garnish and a nonaqueous additive is used, it may become it is bad and impossible producing a film film production precision.

[0025] An interlayer's transparency gets worse and is not desirable if the addition of HIPS exceeds 50 weight sections.

[0026] The above-mentioned interlayer may form to the resin constituent 100 weight section which consists of 30 - 70 % of the weight of E-O copolymers, and 70 - 30 % of the weight of S-B copolymers with the resin constituent containing three sorts of resin which added only the S-B copolymer water garnish of under 30 weight sections. Moreover, it may be formed to the resin constituent 100 weight section which consists of 30 - 70 % of the weight of E-O copolymers, and 70 - 30 % of the weight of S-B copolymers from the resin constituent which adds 5 - 50 weight section only for HIPS of under 50 weight sections, and contains three sorts of resin.

[0027] The interlayer of the monolayer structure of this invention can form besides the above-mentioned configuration from the resin constituent which consists of 30 - 70 % of the weight of E-O copolymers of consistencies 0.915-0.940, and 70 - 30 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [of butadienes] S-B copolymers. In this case, if the adhesiveness of a film increases that the amount of styrene which constitutes the S-B copolymer to be used is less than 50 % of the weight, and it is hard coming to deal with it and it exceeds 90 % of the weight, the bond strength of the heat sealant layer in low temperature will fall, and it is not desirable. And the mixing ratio of the E-O copolymer and S-B copolymer in the middle class influences greatly the peel strength and transparency when exfoliating, after heat sealing a covering tape on a carrier tape. When a S-B copolymer exceeds [an E-O copolymer] 70 % of the weight less than 30% of the weight, the middle class's film production nature and transparency will fall, and a covering tape will also spoil transparency. Moreover, the bond strength of the middle class and a heat sealant layer is also too large, and the peel strength of a covering tape will exceed a fitness value, and it is not desirable. On the other hand, an E-O copolymer exceeds 70 % of the weight, and when a S-B copolymer is less than 30 % of the weight, the bond strength of the middle class and a heat sealant layer is small, and it is not [the peel strength of a covering tape will be less than a fitness value, and] desirable.

[0028] The middle class of the monolayer structure of this invention can consist of resin constituents which consist of 90 - 10 % of the weight of 30 - 70 % of the weight of E-O copolymers of consistencies 0.915-0.940, and butadienes [70 - 30 % of the weight of styrene and 90 - 50 % of the weight of butadienes] S-B copolymer water garnishes.

[0029] In this case, when the consistency of an E-O copolymer exceeds less than 0.915 and 0.940, the film production nature of the interlayer by combination with a S-B copolymer water garnish will fall, and it is not desirable. Moreover, if the adhesiveness of a film increases that the amount of styrene which constitutes the S-B copolymer water garnish to be used is less than 10 % of the weight, and it is easy to generate blocking and it exceeds 50 % of the weight, adhesion with the heat SHIRANTO layer of whenever [low-temperature] worsens and is not desirable. A hydrogenation object has good compatibility with an E-O copolymer, and flexibility and transparency are given to an interlayer. And the mixing ratio of the middle class's E-O copolymer and a S-B copolymer water garnish influences greatly the peel strength after heat sealing a carrier tape and a covering tape, and the middle class's transparency. That is, when a S-B copolymer water garnish exceeds [an E-O copolymer] 70 % of the weight less than 30% of the weight, an interlayer's film production nature worsens and transparency also falls. On the other hand, an E-O copolymer exceeds 70 % of the weight, and when a S-B copolymer water garnish is less than 30 % of the weight, the bond strength of the middle class and a heat sealant layer is weak, and it is not less [of a covering tape] than a fitness value, and desirable.

[0030] the interlayer of this invention -- glass-transition temperature -- a line 40 degrees C or more -- it can also form with saturated polyester. glass-transition temperature -- a line 40 degrees C or more -- as saturated polyester, it is polyester by the dicarboxylic acid by aromatic series dicarboxylic acid, such as aliphatic series dicarboxylic acid and terephthalic acids, such as alcoholic components, such as ethylene glycol, propylene glycol, 1,4-butanediol, 1, and 4 cyclohexane dimethanol, and an adipic acid, a sebacic acid, isophthalic acid, and a diphenyl carboxylic acid, etc., for example. Specifically, a copolycondensation polymer with ethylene glycol, a terephthalic acid and ethylene glycol, isophthalic acid and a terephthalic acid, 1, and 4 cyclohexane dimethanol and ethylene glycol, a terephthalic acid and propylene glycol, a terephthalic acid, isophthalic acid, etc. is used. Moreover, having set glass-transition temperature as 40 degrees C or more originates in the environmental condition which uses a covering tape not resulting in 40 degrees C or more.

[0031] The interlayer of the above-mentioned monolayer structure has the desirable thickness of 10-100 micrometers. If film production nature is bad and exceeds 100 micrometers when thickness is less than 10 micrometers, the heat-sealing nature of a covering tape will fall.

[0032] The middle class 5 of this invention can consider as multilayer structure, and drawing 2 is the schematic diagram showing the cross section of the covering tape 1 of two-layer structure, and constitutes the middle class 5 from a 1st resin layer 51 and a 2nd resin layer 52.

[0033] A consistency with easy film production uses the 1st resin layer 51 as the E-O copolymer of 0.915-0.940. In this case, the 2nd resin layer 52 As opposed to the resin constituent 100 weight section which a consistency becomes from 30 - 70 % of the weight of E-O copolymers of 0.915-0.940, and 70 - 30% of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [of butadienes] S-B copolymers It can form from the resin constituent with which the 10 - 50 % of the weight of styrene and 90 - 50 % of the weight [of butadienes] S-B copolymer water garnish 5 - 30 weight sections are added. Furthermore, the 2nd resin layer

52 can be formed with the resin constituent which has added HIPS of 5 - 50 weight section to the resin constituent 100 weight section which consists of 30 - 70 % of the weight of E-O copolymers of consistencies 0.915-0.940, and 70 - 30 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [of butadienes] S-B copolymers. Moreover, the 2nd resin layer 52 can form a 10 - 50 % of the weight of styrene, and 90 - 50 % of the weight [of butadienes] S-B copolymer water garnish to the resin constituent 100 weight section which consists of 30 - 70 % of the weight of E-O copolymers of consistencies 0.915-0.940, and 70 - 30 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [of butadienes] S-B copolymers with the resin constituent which added 3 - 30 weight section, and HIPS5 - 50 weight sections.

[0034] And the 1st resin layer and the 2nd resin layer can be formed by the thickness of 5-60 micrometers, respectively.

[0035] the schematic diagram of a cross section showing the example of the covering tape of this invention on which drawing 3 made the middle class 5 the three-tiered structure -- it is -- the middle class 5 -- the 1st resin layer 51, the 2nd resin layer 52, and the 3rd resin layer 53 -- ** -- it constitutes so that it may paste together in order and the 3rd resin layer 53 may touch the heat sealant layer 6.

[0036] The 1st resin layer 51 consists of E-O copolymers of the consistencies 0.915-0.940 with easy film production. In this case, the 2nd resin layer 52 They are the constituent which becomes with 30 - 70 % of the weight of E-O copolymers of consistencies 0.915-0.940, and 70 - 30 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [of butadienes] S-B copolymers, and a presentation which is different in the 3rd resin layer 53. 30 - 70 % of the weight of and E-O copolymers of consistencies 0.915-0.940, As opposed to the resin constituent 100 weight section which consists of 70 - 30 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [of butadienes] S-B copolymers The constituent which added 10 - 50 % of the weight of styrene, the S-B copolymer water garnish of 90 - 50 % of the weight [of butadienes] 5 - 30 weight section, and HIPS5 - 50 weight sections can constitute.

[0037] The 3rd resin layer 53 can be formed from the resin constituent with which the 10 - 50 % of the weight of styrene and 90 - 50 % of the weight [of butadienes] S-B copolymer water garnish 5 - 30 weight sections are added to the resin constituent 100 weight section which a consistency becomes from 30 - 70 % of the weight of E-O copolymers of 0.915-0.940, and 70 - 30 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [of butadienes] S-B copolymers. Moreover, the 3rd resin layer 53 can be formed to the resin constituent 100 weight section which consists of 30 - 70 % of the weight of E-O copolymers of consistencies 0.915-0.940, and 70 - 30 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [of butadienes] S-B copolymers with the resin constituent with which HIPS5 - 50 weight sections are added. Furthermore, it can also form to the resin constituent 100 weight section which consists of 30 - 70 % of the weight of E-O copolymers of consistencies 0.915-0.940, and 70 - 30 % of the weight of 50 - 90 % of the weight of styrene, and 50 - 10 % of the weight [of butadienes] S-B copolymers with the resin constituent with which 10 - 50 % of the weight of styrene, the 90 - 50 % of the weight [of butadienes] S-B copolymer water garnish 5 - 30 weight sections, and HIPS5 - 50 weight sections are added.

[0038] And the 1st resin layer 51, the 2nd resin layer 52, and the 3rd resin layer 53 can be formed by the thickness of the range of 3-30 micrometers, respectively. Although the dry lamination of the interlayer 5 who formed the adhesives layer 3 in one field of a biaxially oriented film 2, and created at another process is not carried out or illustration is not carried out, the melting extrusion coat of the resin for adhesion can be carried out through an anchor coat layer, and it can form by the sandwiches lamination.

[0039] The heat sealant layer of the covering tape of this invention is formed of polyester, polyurethane, a vinyl chloride and a vinyl acetate system copolymer, the thermoplastics that consists of at least one sort of acrylic resin, the conductive particle mentioned later. As an example of combination of two or more sorts of thermoplastics, the mixed varnish (a mixing ratio is 9:1-4:6) of polyurethane, and a vinyl chloride and a vinyl acetate system copolymer, the mixed varnish (a mixing ratio is 5:5 to 9.5:0.5) of polyester, and a vinyl chloride and a vinyl acetate system copolymer, the mixed varnish (a mixing ratio is 5:5 to 9.5:0.5) of acrylic resin, and a vinyl chloride and a vinyl acetate system copolymer, etc. can be mentioned. in addition, the line whose interlayer is 40 degrees C -- when formed more with saturated polyester, it is desirable to use the mixed varnish of polyurethane, and a vinyl chloride and a vinyl acetate system copolymer.

[0040] The electrostatic diffusion layer prepared in the heat sealant layer of this invention uses a bis-ammonium system organic sulfur semi-conductor as a principal component. And it can knead on the varnish which consists of thermoplastics or thermoplastic elastomer, and the solution distributed to (water/isopropyl alcohol) as a simple substance can be prepared according to a roll coat, a gravure coat, or spraying. 0.01-30

micrometers of thickness of the electrostatic diffusion layer in this invention are 0 and 0.05-2 micrometers preferably.

[0041] The bis-ammonium system organic sulfur semi-conductor contained in this electrostatic diffusion layer is transparent and colorless, has good static-free nature depending on humidity, without influencing the heat-sealing nature of a heat sealant layer, while giving antistatic nature to a covering tape, is transparent and has the visibility of contents.

[0042] The heat sealant layer which established the above-mentioned electrostatic diffusion layer That surface resistivity is 105-1012ohms / ** in 22 degrees C and 40% (surface resistivity indicates below the numeric value measured on this condition) of relative humidity, and sets to 23**5 degrees C and 12**3% of relative humidity. The time amount (the charge damping time indicates below the numeric value measured on this condition) taken to decrease 99% from 5000V has the outstanding static electricity property of 2 or less seconds. If the above-mentioned surface resistivity exceeds 1012ohms / **, the static electricity spreading effect will get extremely bad, and it will become difficult to protect electronic parts from the static electricity destruction. Moreover, 105 When it comes to under omega/**, it may energize from the exterior to electronic parts through a covering tape, and there is risk of electronic parts being destroyed electrically. On the other hand, when the charge damping time which is the standard of the diffusion rate of the charge generated with static electricity exceeds 2 seconds, it becomes difficult for the static electricity spreading effect to get extremely bad, and to protect electronic parts from the static electricity destruction. In addition, above-mentioned surface resistivity and the above-mentioned charge damping time were measured based on MIL-B-81705C which is U.S. Military Standard.

[0043] By preparing an interlayer 5 the heat sealant layer 6, when exfoliating the covering tape 1 heat sealed by the carrier tape 11, the covering tape 1 is the exfoliation gestalt of the desirable form produced between the layers of an interlayer 5 and the heat sealant layer 6, as shown in drawing 6 . That is, although interlaminar peeling is not carried out between an interlayer 5 and the heat sealant layer 6 or the covering tape 1 which formed the heat-sealing section 10 in the carrier tape 11 shown in drawing 4 R> 4 - drawing 5 does not carry out illustration as shown in drawing 6 when exfoliating, its gestalt which produces the cohesive failure in the layer of the heat sealant layer 6 is desirable. In addition, in the condition of having exfoliated, the exfoliation gestalt between an interlayer 5 and the heat sealant layer 6 was made into interlaminar peeling this time. As for it, judging that it exfoliated in the cohesive failure of an interlayer 5 or the heat sealant layer 6 when it was judged as interlaminar peeling this time, if an interlayer 5 and the heat sealant layer 6 do not pass for a foreign element to have not been checked, respectively but can check the compound and molecule of ultralow volume by development of tools of analysis after exfoliation from now on is also only considered. However, the case where the foreign element beyond the usual analytical limit did not remain was made into interlaminar peeling for convenience this time.

[0044] In the condition of having heat sealed in the Rhine-like heat-sealing section 10, the bond strength (peel strength) of the interlayer 5 of the covering tape 1 and the heat sealant layer 6 is 10 - 2000g/1mm width, and is small from the bond strength of the heat sealant layer 6 and the electrostatic diffusion layer 7, or the heat-sealing reinforcement of the electrostatic diffusion layer 7 and the carrier tape 11. Subsequently, if the covering tape 1 is exfoliated from the carrier tape 11, the heat sealant layer 6 and the electrostatic diffusion layer 7 will remain in a carrier tape, after the carrier tape 11 has heat sealed, and the Rhine-like heat-sealing section 10 will produce exfoliation between the layers of an interlayer 5 and the heat SHIRANTO layer 6. That is, the covering tape 1 of this invention has the opposite property that it can exfoliate easily, when opening with the firm heat-sealing nature to the carrier tape 11. Moreover, the covering tape which pasted the biaxially oriented film together through the adhesives layer does so the effectiveness which a zip rise makes small, when exfoliating.

[0045] Since the covering tape of this invention exfoliates between an interlayer and a heat sealant layer, it does not change with heat-sealing conditions. Therefore, heat sealing with a covering tape and a carrier tape can fully be heated, and can be performed, and stable heat sealing and peel strength can be obtained.

[0046] The quality of the materials of the carrier tape set as the use object of the covering tape of this invention are a polyvinyl chloride, polystyrene, polyester (A-PET, PEN, PET-G, PCTA), polypropylene, a polycarbonate, a polyacrylonitrile, ABS, etc. And there are some which scour the conductive particle, organic silicon compound, or surfactant which gave these the conductive carbon black particle and the metal particle, and gave conductivity to the metallic oxide as an antistatic cure, or apply the thing containing these. Moreover, the thing in which the conductive polymer was formed is mentioned to the front face of the multilayer sheet which pasted together to one the polystyrene system or ABS system resin which contains carbon black to one side or both sides of a polystyrene system or an ABS system resin sheet by the co-

extrusion, and a sheet plastic. Or the thing in which the conductive polymer was made to form on the surface of a sheet plastic can also be mentioned as conductive processing.

[0047] Next, a concrete example is shown and the covering tape of this invention is further explained to a detail.

(Example 1 of an experiment) As shown in drawing 1, all pasted together the following interlayer 5 who forms the adhesives layer 3 which becomes the 16-micrometer following biaxial-stretching polyester film [trade name by S pet 6140 Toyobo Co., Ltd.] from bamboo NETO A-50 [trade name by Takeda Chemical Industries, Ltd.] as the bamboo rack A515 and a curing agent, and shows in Table 1 by the dry lamination as a biaxial oriented film 2 with a thickness of 16 micrometers which performed surface treatment. It used by the presentation which shows the following as an interlayer's component in Table 1, and the interlayer 5 with a thickness [of a monolayer] of 30 micrometers was created.

** E-O copolymer : ULTZEX 3550 [trade name by Mitsui Petrochemical Industries, Ltd.] consistency =0.925.

** S-B copolymer : 70 - 90 % of the weight of Asa FREX 810 [trade name by Asahi Chemical Industry Co., Ltd.] styrene, 30 - 10 % of the weight of butadienes.

** S-B copolymer water garnish : 20 - 50 % of the weight of tough tech H1041 [trade name by Asahi Chemical Industry Co., Ltd.] styrene, 80 - 50 % of the weight of butadienes.

** HIPS : Styron 475D [trade name by Asahi Chemical Industry Co., Ltd.].

Subsequently, coating liquid 1] for [heat sealant layers which dissolved the following constituent in the solvent by gravure reverse was applied to the above-mentioned middle class 5, and the heat sealant layer 6 was prepared for him by the thickness of 2 micrometers (solid content).

Coating liquid 1 for [heat sealant layers]

- Polyurethane NIPPORAN 5120 The 25.0 weight sections "trade name by Japan polyurethane industrial incorporated company"

- A vinyl chloride and vinyl acetate system copolymer Vinylite VAGH The 25.0 weight sections "Union Carbide trade name"

Furthermore, it is the solution of bis-ammonium system organic sulfur semi-conductor high boron SC "trade name by boron international incorporated company" with the gravure reversing method as an object for electrostatic diffusion layers to the heat SHIRANTO layer 6 0.1 g/m² It applied and the samples 1-15 and the comparison samples 1-6 of the example of an experiment were created.

[0048]

[Table 1]

表 1 実験例 1 の構成

試料番号	中間層の構成				静電拡散層の
	E・O 共重合体	S・B 共重合体	S・B 水添物	HIPS	
実験例	1 2	8 8	—	—	有
	2 12	8 0	8	—	"
	3 12	8 0	—	8	"
	4 40	6 0	—	—	"
	5 40	5 0	5	5	"
	6 40	4 2	2 8	—	"
	7 40	4 2	—	2 8	"
	8 40	1 0	2 5	2 5	"
	9 8 8	—	1 2	—	"
	10 40	6 0	—	—	"
	11 40	6 0	—	—	"
	12 40	6 0	—	—	"
	13 40	6 0	—	—	"
	14 40	6 0	—	—	"
	15 40	8 0	—	—	"
比較試料	1 5	9 5	—	—	"
	2 9 5	5	—	—	"
	3 4 0	2 5	3 5	—	"
	4 4 0	5	—	5 5	"
	5 4 0	6 0	—	—	無
	6 4 0	6 0	—	—	*

但し * 静電拡散層は界面活性剤型帯電防止剤を使用。

E・O共重合体：エチレン・ α オレフィン共重合体

S・B水添物：S・B共重合体水添物

[0049] each above-mentioned sample (examples 1-15 and comparison samples 1-6) -- whenever [haze] -- total light transmission, surface resistivity, and the charge damping time -- and -- and although heat sealed with the conductive polyvinyl chloride base material XEG47 " trade name made from a peace chemistry incorporated company stock", peel strength and an exfoliation gestalt are shown in the property of the example 1 of table 2 experiment.

- Whenever [haze], and total light transmission : measure by color computer SM-5SC " trade name by Suga Test Instruments Co., Ltd."

- Surface resistivity : measure on the conditions 22 degrees C and whose relative humidity are 40% using Huy Lester IP " trade name by Mitsubishi Chemical, Inc."

- Charge damping time : STATIC DECAY 23**5 degrees C and relative humidity measure the time amount which 5000V to 99% of attenuation takes on the conditions which are 12**3% based on MIL-B-81705C using METER-406C "Electro-Tech Systems and trade name made from Inc."

- peel strength: -- the conditions for temperature [of 150 degrees C], 2.0 kgf/cm pressure 2, and time amount 0.5 seconds -- heat sealing -- tensilon universal testing machine HTH- measure the peel strength of g/15mm for exfoliation and an exfoliation rate by 300 mm/min 180 degrees using 100 "an Oriental Baldwin, Inc. trade name."

[0050]

[Table 2]

表 2 実験例 1 の特性

試料番号	ヘーズ度 %	全光線 透過率 %	表面 抵抗率 Ω/\square	電 荷 減衰時間 秒	剝離強度 g/ 15mm巾	剝離形態
実施例 1	20	90	10^7	0.01	1120	層間剝離
2	24	85	"	"	1100	"
3	26	84	"	"	1100	"
4	20	82	"	"	600	"
5	30	80	"	"	700	"
6	32	75	"	"	700	"
7	35	70	"	"	700	"
8	40	65	"	"	1050	"
9	10	82	"	"	1050	"
10	12	92	"	"	700	"
11	20	92	"	"	400	"
12	22	90	"	"	420	"
13	20	92	"	"	520	"
14	15	92	"	"	600	"
15	16	90	"	"	600	"
比較試料 1	15	90	10^7	0.01	1250	層間剝離
2	15	90	"	"	80	界面剝離
3	25	85	"	"	700	層間剝離
4	52	60	"	"	700	"
5	20	92	$> 10^{10}$	$> 2.0^*$	600	"
6	20	92	$> 10^{10}$	10	600	"

但し、 * : 減衰せず
> : 測定不能

層間剝離 : ヒートシーラント層と中間層との間で剝離

凝集剝離 : ヒートシーラント層の内部破壊による剝離

界面剝離 : ヒートシーラント層と被着体との間で剝離

[0051] (Example 2 of an experiment) The covering tape shown in Table 3 using the biaxial-stretching polyethylene terephthalate film, the adhesives, and the middle class who indicate below was created.

- Biaxial-stretching polyethylene terephthalate film Dacron film F type [trade name by Teijin, Ltd.] thickness is 12, 16, 25, 50, and 75 micrometers.

- Adhesives principal component : a polyurethane system, a polyester system, a polyether system, acrylic, an epoxy system, a polyimide system,

Curing agent: An isocyanate system, an amine system.

As an interlayer, the ULTZEX 3550 [trade name by Mitsui Petrochemical Industries, Ltd.] 40 % of the weight used in the example 1 of an experiment and Asa FREX 810 [trade name by Asahi Chemical Industry

Co., Ltd.] 60 % of the weight were blended, and thickness 8, 10, 30, 50, and 90 and the 120-micrometer interlayer 5 were created by the usual tubular film process. In the biaxially oriented film 2, the adhesives layer 3 of polyester and an isocyanate system was formed, and the interlayer 5 was pasted together by the dry lamination to it. Subsequently, coating liquid 2] for [heat sealant layers which dissolved the following constituent in the solvent by gravure reverse was applied to the above-mentioned middle class 5, and the heat sealant layer 6 was prepared for him by the thickness of 2 micrometers (solid content).

Coating liquid 2for [heat sealant layers]

- Polyurethane NIPPORAN 5120 The 20.0 weight sections " trade name by Japan polyurethane industrial incorporated company"

- A vinyl chloride and vinyl acetate system copolymer Vinylite VAGH The 80.0 weight sections "Union Carbide trade name"

Furthermore, it is the solution of bis-ammonium system organic sulfur semi-conductor high boron SC " trade name by boron international incorporated company" with the gravure reversing method as an object for electrostatic diffusion layers to the heat SHIRANTO layer 6 0.1 g/m² It applied, the electrostatic diffusion layer 7 was established, and the examples 21-39 and the comparison samples 11-17 of the example 2 of an experiment were created.

[0052] About each sample (examples 21-39 and comparison samples 21-27) of the example 2 of an experiment, it heat sealed on condition that the following, peel strength was measured, and the zip rise and exfoliation gestalt which are the difference of the average value of peel strength, the maximum peel strength, and the minimum peel strength were estimated as the sheet XEG47 of a carrier tape " trade name by peace chemistry incorporated company." The result is shown in the heat-sealing property of the sample in the example 2 of an experiment of Table 3.

measuring instrument: -- peel strength measuring instrument VG- 10 " trade name by van guard incorporated company"

Heat-sealing conditions: Seal conditions : Let 25 shots (200mm) be a sample after seal head:width 0.5mmx2, die length of 16mm, delivery die length of 8mm, and extraction sample:50-shot (400mm) extraction for the temperature of 150 degrees C, the 2.0 kgf/cm pressure 2, and time amount 0.5 seconds. 1mm and an exfoliation include angle are measured and an exfoliation rate is measured [a sample] for exfoliation width by 300 mm/min 180 degrees.

[0053] The constants a and b of the relational expression computed by the result of having measured the stiffness reinforcement, about each covering tape (they are the comparison samples 21-27 to an example 21 - 39 lists) of the above-mentioned example 2 of an experiment are shown in Table 3.

Measuring instrument: Loop-formation stiffness circuit tester " trade name by Oriental energy machine incorporated company"

Measuring condition: Sample configuration 15x110mm (however, 15mm, cross direction)

The die length of a loop formation 62mm The amount of pushing 5mm [0054]

[Table 3]

表 3 実施例 2 の試料の剝離状況
及びステイフネスの関係式の定数

実験試料 番号	延伸 フィルムの 厚さ μm	中間 層の 厚さ μm	接 着 剤				ステイフネス法の 関係式の定数			ジップ アップ g	剝離 強度 g/15mm	剝離 形態
			主成分	硬化剤	成分比 *1	厚さ μ	a	b	初期 値 g			
21	16	30	PU	イ	100/25	8	0.055	8.5	10.0	10	530	層間
22	"	"	"	"	100/1	"	0.051	5.0	6.5	18	410	"
23	"	"	"	"	100/25	"	0.050	20.0	20.0	8	580	"
24	"	"	"	"	"	"	0.061	30.0	30.0	5	620	"
25	"	"	Es	"	"	"	0.071	9.0	9.0	10	520	"
26	"	"	Et	"	"	"	0.052	11.0	7.5	11	510	"
27	"	"	AC	"	"	"	0.071	14.0	8.2	14	480	"
28	"	"	PI	"	"	"	0.092	12.0	6.5	12	470	"
29	"	"	EP	ア	"	"	0.068	15.0	5.2	15	560	"
30	12	"	PU	"	"	"	0.112	5.0	5.0	18	620	"
31	25	"	"	"	"	"	0.351	10.0	25.0	10	490	"
32	50	"	"	"	"	"	0.481	7.0	43.0	7	410	"
33	16	10	"	"	"	"	0.012	23.0	4.5	23	510	"
34	"	50	"	"	"	"	0.009	13.0	10.0	13	500	"
35	"	90	"	"	"	"	0.310	8.0	31.0	8	400	"
36	"	30	"	"	"	5	0.410	13.0	5.0	13	480	"
37	"	"	"	"	"	20	0.951	11.0	10.0	11	520	"
38	"	"	"	"	"	50	0.130	8.0	16.0	8	540	"
39	"	"	"	"	"	80	0.280	7.0	18.0	7	550	"
比21	16	30	PU	イ	100/12	8	0.810	61.0	61.0	5	620	界面
較22	"	"	"	"	100/01	"	0.025	10.0	10.0	41	560	層間
試23	"	"	"	"	"	2	0.013	5.0	5.0	38	590	"
料24	"	"	"	"	"	11	0.510	20.0	20.0	6	690	界面
25	75	"	"	"	"	8	1.010	67.0	67.0	5	550	層間
26	16	8	"	"	"	"	0.031	10.0	10.0	40	510	"
27	"	120	"	"	"	"	0.810	18.0	18.0	38	490	界面

伸フィルム：二軸延伸フィルム

U：ポリウレタン系 イ：イソシアネート系硬化剤

Es：ポリエステル系 ア：アミン系硬化剤

Et：ポリエーテル系

AC：アクリル系

PI：ポリイミド系

EP：エポキシ樹脂

PU：アクリル系共重合体

[0055] The covering tape of this invention can fully carry out the heating seal of a heat sealant layer and the carrier tape, and can exfoliate between an interlayer and a heat sealant layer. About exfoliation actuation of the covering tape 1 shown in drawing 4, drawing 4 R > 4 - drawing 6 are made reference, and are explained. The heat-sealing section 10 of the shape of Rhine which has shown the covering tape 1 shown in the carrier tape 11 which formed the pocket 12 at drawing 5 to the both ends in the slash section with predetermined width at drawing 4 is formed. The heat-sealing reinforcement of the heat sealant layer 6 of the covering tape 1 and the carrier tape 11 is 10 - 200g/1mm width in this condition. Subsequently, it exfoliates between the interlayer 5 who shows the covering tape 1 to drawing 6 in the Rhine-like heat-sealing section 10 when it exfoliates from the carrier tape 11, and the heat sealant layer 6. That is, it has the opposite engine performance in which both exfoliations can also make easy suddenly heat-sealing nature highly stabilized by the covering tape of this invention to the carrier tape 11. Moreover, by thickening the adhesives layer of a biaxially oriented film and an interlayer, or making high the ratio of the curing agent in an adhesives layer component, chewiness (the stability at the time of making a film etc. crooked is meant, and the stability is estimated that the waist is [a larger thing] stronger) becomes strong, and a zip rise becomes small.

[0056]

[Effect of the Invention] The covering tape formed by the middle class who pasted together with a biaxially oriented film and hardening mold adhesives The heat sealant layer prepared for the interlayer formed with three or more sorts of resin which lessens a zip rise when exfoliating, and contains an E-O copolymer and a

S-B copolymer at least among an E-O copolymer, a S-B copolymer, a S-B copolymer water garnish, and HIPS When exfoliating with a carrier tape, the effectiveness of stabilizing and exfoliating between an interlayer and a heat sealant layer is done so.

[Translation done.]

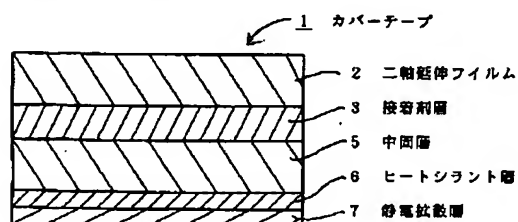
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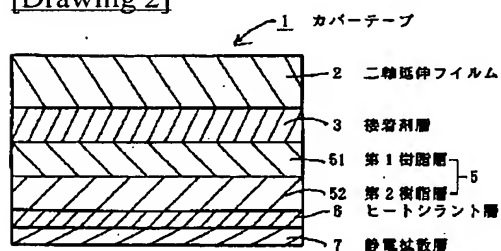
- 1.This document has been translated by computer. So the translation may not reflect the original precisely.
- 2.*** shows the word which can not be translated.
- 3.In the drawings, any words are not translated.

DRAWINGS

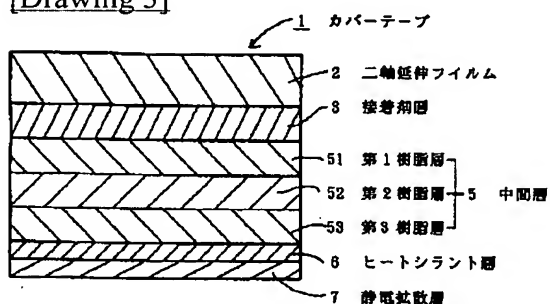
[Drawing 1]



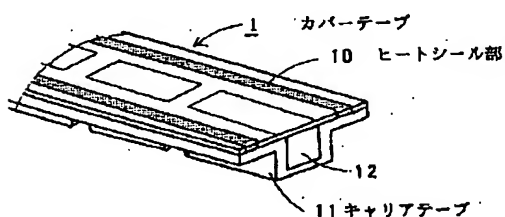
[Drawing 2]



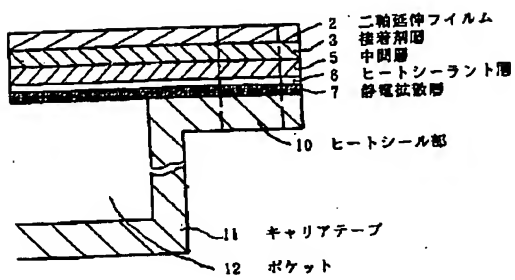
[Drawing 3]



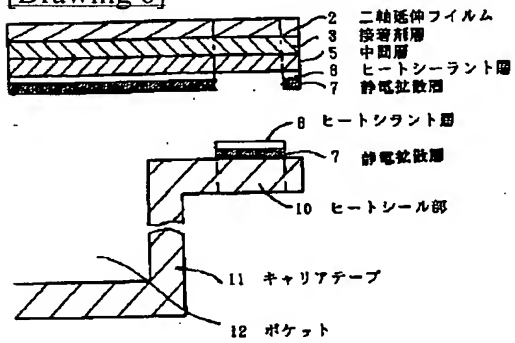
[Drawing 4]



[Drawing 5]



[Drawing 6]



[Translation done.]